

IN THE CLAIMS:

Please cancel claims 43-47, 49, 59, 68-71, 73 and 80.

Please amend the claims as follows:

Claim 51, line 1, change "43" to --48--.

52. (Twice Amended) In combination, an electric motor brush assembly and a DC electric motor, the brush assembly comprising:

first and second resilient, electrically conductive support arms arranged for being axially spaced from each other with respect to a longitudinal axis of said DC electric motor when said assembly is mounted in the motor,

the support arms being connected electrically in parallel,

each arm carrying a respective brush body, said brush bodies being arranged for contacting a generally cylindrical commutator of the motor,

the commutator having a plurality of circumferential segments and the first and second brush bodies being capable of contacting a single one of said segments simultaneously when the assembly is mounted in the motor,

each arm in combination with the respective brush body thereof having a different respective natural resonance frequency of oscillation;

wherein said first and second support arms have respective portions made of different resilient materials, thereby providing said different resonant frequencies; and

said direct current electric motor comprising[:] said generally cylindrical commutator, and said first and second brush bodies being in contact therewith.

Claim 53, line 1, change "43" to --48--.

Claim 54, line 1, change "43" to --48--;

58. (Twice Amended) In combination, an electric motor brush assembly and a DC electric motor, the brush assembly comprising:

first and second resilient, electrically conductive support arms arranged for being axially spaced from each other with respect to a longitudinal axis of said DC electric motor when said assembly is mounted in the motor,

the support arms being connected electrically in parallel,

each arm carrying a respective brush body, said brush bodies being arranged for contacting a generally cylindrical commutator of the motor,

the commutator having a plurality of circumferential segments and the first and second brush bodies being capable of contacting a single one of said segments simultaneously when the assembly is mounted in the motor,

each arm in combination with the respective brush body thereof having a different respective natural resonance frequency of oscillation;

wherein said first and second support arms have respective portions made of different resilient materials, thereby providing said different resonant frequencies; and

third and fourth resilient, electrically conductive support arms arranged for being axially spaced from each other with respect to said longitudinal axis of said DC electric motor when said assembly is mounted in the motor, said third and fourth support arms being connected electrically in parallel, and carrying respective third and fourth brush bodies which are arranged for contacting said generally cylindrical commutator of the motor, the commutator having a plurality of circumferential segments and the third and fourth brush bodies being capable of contacting a single one of said segments simultaneously when the assembly is mounted in the motor; [and]

said direct current electric motor comprising[:] said generally cylindrical commutator, and said third and fourth brush bodies being in contact therewith.

Claim 60, line 1, change "59," to --72,--.

Claim 74, line 20, change "a slot" to --an aperture--;
change "slot" (second occurrence) to --aperture--.

Claim 75, line 1, change "59," to --72,--.

Claim 76, line 1, change "59" to --72--.

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77. (Amended) An electric motor brush assembly for
being mounted in a DC motor comprising:

first and second resilient, electrically conductive
supports arranged for being mounted in such motor, the supports
carrying respective first and second brushes which are thereby
arranged for contacting a commutator of such motor when the
assembly is mounted in the motor;

the supports being axially spaced from each other along
said axis of said motor [and the supports having substantially
equal lengths];

said first support and brush having a first resonant
frequency, said second support and brush having a second resonant
frequency, and said first and second resonant frequencies being
different;

wherein said first and second supports have respective
portions made of different resilient materials, thereby providing
said different resonant frequencies.

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78. (Twice Amended) In combination, an electric motor
brush assembly and a DC motor, said brush assembly comprising:

first and second resilient, electrically conductive
supports arranged for being mounted in the motor, the supports
carrying respective first and second brushes which are thereby
arranged for contacting a commutator of the motor when the
assembly is mounted in the motor;

the supports being axially spaced from each other along
said axis of said motor [and the supports having substantially
equal lengths];

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said first support and brush having a first resonant frequency, said second support and brush having a second resonant frequency, and said first and second resonant frequencies being different;

wherein said first and second supports have respective portions made of different resilient materials, thereby providing said different resonant frequencies; and

said direct current electric motor comprising[:] said commutator, said commutator being generally cylindrical, and said first and second brushes of the brush assembly being in contact therewith.

Please add new claims 81-92 as follows:

81. ~~An electric motor brush assembly for being~~
mounted in a DC motor comprising:

first and second resilient, electrically conductive supports arranged for being mounted in such motor, the supports carrying respective first and second brushes which are thereby arranged for contacting a commutator of such motor when the assembly is mounted in the motor;

the supports being axially spaced from each other along said axis of said motor;

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said first support and brush having a first resonant frequency, said second support and brush having a second resonant frequency, and said first and second resonant frequencies being different;

wherein at least one of said first and second supports has an aperture formed therein for providing said supports with different resiliencies and thereby providing said different resonant frequencies.

82. In combination, an electric motor brush assembly and a DC motor, said brush assembly comprising:

first and second resilient, electrically conductive supports arranged for being mounted in the motor, the supports carrying respective first and second brushes which are thereby

arranged for contacting a commutator of the motor when the assembly is mounted in the motor;

the supports being axially spaced from each other along said axis of said motor;

said first support and brush having a first resonant frequency, said second support and brush having a second resonant frequency, and said first and second resonant frequencies being different;

wherein at least one of said first and second supports has an aperture formed therein for providing said supports with different resiliencies and thereby providing said different resonant frequencies; and

said direct current electric motor comprising said commutator, said commutator being generally cylindrical, and said first and second brushes of the brush assembly being in contact therewith.

83. A brush assembly as in claim 82, wherein said commutator has a plurality of circumferential segments and said first and second brushes are mounted so as to be capable of contacting a common one of said segments simultaneously.

84. A brush assembly as in claim 74, wherein said first and second brush bodies, having said different resonant frequencies, remain in reliable electrical contact between said first and second supports and said commutator, thereby reducing interface resistance between the brushes and the commutator, despite oscillations of said supports and brushes which occur in response to rotation of said commutator.

85. A brush assembly as in claim 74, wherein said commutator has a circumference, said brushes being mounted so as to be at substantially a common position around said circumference.

86. A brush assembly as in claim 85, wherein said commutator has a plurality of circumferential segments and said

first and second brushes are mounted so as to be capable of contacting a common one of said segments simultaneously.

87. A brush assembly as in claim 86, wherein said first and second brush bodies, having said different resonant frequencies, remain in reliable electrical contact between said first and second supports and said commutator, thereby reducing interface resistance between the brushes and the commutator, despite oscillations of said supports and brushes which occur in response to rotation of said commutator.

88. A brush assembly as in claim 50, wherein said two brush bodies, having said different resonant frequencies, remain in reliable electrical contact between said first and second support arms and said commutator, thereby reducing interface resistance between the brush bodies and the commutator, despite oscillations of said arms and brush bodies which occur in response to rotation of said commutator.

89. In combination, an electric motor brush assembly and a DC electric motor, the brush assembly comprising:

first and second resilient, electrically conductive support arms arranged for being axially spaced from each other with respect to a longitudinal axis of said DC electric motor when said assembly is mounted in the motor,

the support arms being connected electrically in parallel,

each arm carrying a respective brush body, said brush bodies being arranged for contacting a generally cylindrical commutator of the motor,

the commutator having a plurality of circumferential segments and the first and second brush bodies being capable of contacting a single one of said segments simultaneously when the assembly is mounted in the motor,

each arm in combination with the respective brush body thereof having a different respective natural resonance frequency of oscillation;

wherein at least one of said first and second support arms has an aperture formed therein for providing said support arms with different resiliencies and thereby providing said different resonant frequencies; and

said direct current electric motor comprising said generally cylindrical commutator, and said first and second brush bodies being in contact therewith.

90. A brush assembly as in claim 89, wherein said two brush bodies, having said different resonant frequencies, remain in reliable electrical contact between said first and second support arms and said commutator, thereby reducing interface resistance between the brush bodies and the commutator, despite oscillations of said arms and brush bodies which occur in response to rotation of said commutator.

91. In combination, an electric motor brush assembly and a DC electric motor, the brush assembly comprising:

first and second resilient, electrically conductive support arms arranged for being axially spaced from each other with respect to a longitudinal axis of said DC electric motor when said assembly is mounted in the motor,

the support arms being connected electrically in parallel,

each arm carrying a respective brush body, said brush bodies being arranged for contacting a generally cylindrical commutator of the motor,

the commutator having a plurality of circumferential segments and the first and second brush bodies being capable of contacting a single one of said segments simultaneously when the assembly is mounted in the motor,

each arm in combination with the respective brush body thereof having a different respective natural resonance frequency of oscillation;

wherein at least one of said first and second support arms has an aperture formed therein for providing said support

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arms with different resiliencies and thereby providing said different resonant frequencies; and

third and fourth resilient, electrically conductive support arms arranged for being axially spaced from each other with respect to said longitudinal axis of said DC electric motor when said assembly is mounted in the motor, said third and fourth support arms being connected electrically in parallel, and carrying respective third and fourth brush bodies which are arranged for contacting said generally cylindrical commutator of the motor, the commutator having a plurality of circumferential segments and the third and fourth brush bodies being capable of contacting a single one of said segments simultaneously when the assembly is mounted in the motor;

said direct current electric motor comprising said generally cylindrical commutator, and said third and fourth brush bodies being in contact therewith.

92. A brush assembly as in claim 74, wherein said aperture is a slot.

REMARKS

This is responsive to the Office Action dated December 10, 1998.

The Examiner objected to the drawings on the ground that certain claimed features were not seen. The claims containing the features the Examiner referred to are being cancelled herein. Therefore, the objection to the drawings is requested to be withdrawn.

In addition, attached hereto is a proposed new Figure 7, which illustrates an embodiment having an aperture, which in this example is slot-shaped, in one support arm. Corresponding amendments are being made to the specification. The new Figure is supported for example by page 5, line 1. Approval and entry are requested.

The Examiner suggested a new title for the application, which is being accepted by the applicant.